WEBQUEST IN THE SPANISH UNIVERSITY CONTEXT: FINDINGS AND FUTURE STEPS

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Abstract

This paper reports on the use, dissemination and perception of WebQuest (WQ) experienced by Spanish universities.

WebQuest is an inquiry-oriented activity in which most or all of the information used by learners is drawn from the Internet. Appropriate use of WQ means “to scaffold advanced cognition by integrating the ‘ill-structured’ nature of the World Wide Web with a process that guides novices through decisions and experiences that characterize experts’ behaviour.” We can say that today WQ enjoys a recognized status as a learning strategy in the educational world.

The WQ concept originated in a higher education context, although it is a strategy that has been used predominantly in primary and secondary education. Nevertheless, there has been renewed interest in it for university education since the establishment of the European Higher Education Area (EHEA) and its competency-based teaching system.

In this paper the authors briefly review the theoretical aspects and key findings on the impact of WQ implementation in different areas of knowledge in higher education and consider the data collected in both the international and Spanish research contexts.

The theoretical review is complemented with a summary of the results from two surveys. The first examines the role of university bodies with responsibility for university teacher training in the methodological integration of ICT in its practice and, specifically, in the dissemination of WQ. The second survey looks at the opinions of an expert group in order to see, among other things, their views on the advantages and disadvantages of this method, its acceptance by students and its use in connection with the implementation of the EHEA.

The paper concludes with a reflection on the appropriateness of WebQuest methodology in higher education and the steps needed to improve its use, dissemination and sharing, particularly in a web 2.0 context.

Keywords: WebQuest, University Education, Teacher Training, Methodological Integration of ICT, European Higher Education Area (EHEA), Web 2.0.

1 WEBQUESTS

1.1 Definition and main characteristics

The term WebQuest (WQ), coined by Bernie Dodge in 1995 [1] and the fruit of his work in collaboration with Tom March, is widely known in the field of education. It refers basically to an educational strategy presented as an online working template in which, based on an initial situation relating to a specific subject, students are asked to undertake a task or cooperative project using information found mainly on the Internet. These web resources are pre-selected by the teachers in order to guarantee their validity, relevance and quality and to increase the efficiency of looking for and finding them. As a final note, it is usually suggested that a public presentation is made of the results, as well as a reflection on the process followed and the lessons learned.

WQs have a clearly defined structure. This has been reconfigured over time to reach the current one (Cfr.[2], for a review of the evolution of WQ structure and definitions), although it continues to be one of its most recognizable characteristics at first sight. The WQ structure normally consists of Introduction, Task, Process (which includes Resources), Evaluation and Conclusion, as well as the Educational Guide or Teachers’ Page. Each of these sections guides the students through the activities proposed by the WQ, providing contextual information, defining the tasks to be carried out and the resources needed to complete the task and describing the procedures that should be followed.
to achieve satisfactory results [3]. In fact, one of the intrinsic characteristics of WQs is the inclusion of pedagogic scaffolding\(^1\) of a cognitive and technological nature that accompanies the students in the processes of information processing and management, facilitating its transformation into self-acquired knowledge [4].

In summary, WebQuests are methodological and educational proposals for cooperative learning based on access to information from the Web and its processing and use as scaffolding aimed at the guided and contextualized accomplishment of a product. Their vocation as an educational resource is that they be shared and reused by other teachers [5].

2 RESEARCH INTO WEBQUESTS IN THE UNIVERSITY

Given the popularity of WebQuests in diverse educational fields and the many virtues often attributed to them, a review of the evidence proving their effectiveness is necessary. Without a solid basis in this respect, this methodological innovation runs the risk, as Maddux and Cummings [6] pointed out, of suffering the same fate as other educational vogues that are highly praised at first and implemented on a massive scale, but, without the support of research and evaluation, end up being abandoned when they fail to reach the heights initially predicted for them.

A review of the studies into the impact of WQs allows them to be grouped into three main subjects [7].

a) In first place, those relating to the impact of the WQ methodology in learning and the comparison of the results of its implementation with those obtained from other traditional teaching methods. In general, the work focuses on the learning of specific subjects, particularly in the area of the acquisition of second languages, in which good results are usually detected [8-12], although the effectiveness of WQs has also been evaluated in areas such as musical appreciation [13], education for citizenship [14] and scientific education for citizenship [15], among others.

b) In second place, those referring to the evaluation of the effect of WQs on students’ attitudes and perceptions [16-21].

c) In third place, those relating to the cognitive requirements of WQs, i.e. research focusing on determining whether WQs promote higher order thinking skills and research abilities that, at least in theory, define them [23-24,13].\(^2\)

Likewise, Abbit and Ophus [7] clearly demonstrate that there are three types of publication in relation to this methodology: informative publications, descriptive publications and research publications.

Analyzing the available publications on WQ in the Spanish area, we agree with the above mentioned authors that there are three types. Firstly, there are those of a descriptive nature that are in the majority and that give details of experiences in the creation, implementation and/or use of WQ in specific contexts [25-30].

In second place we have the more theoretical or informative publications, in which the WQ concept is explained, its pedagogic foundations are analyzed and on occasion the idealness of the methodology for application in a specific educational area is argued [31-32,4,33-37].

Finally, although few and far between, there are publications that demonstrate the use of research instruments for drawing conclusions.

As far as research subjects are concerned, following the international trend, one of the most common subjects found in publications is the impact of WQs on the teaching of second languages. However, if we refer purely to the university context, another important and distinctive area of interest arises in Spanish publications, whether they are of an informative, descriptive or investigative nature: WQ methodology in the area of the EHEA and teaching and learning by competences [38-40].

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1 Jerome Bruner [22] conceived the idea of instructional scaffolding as an educational aid that, inspired by L. S. Vigotsky’s Zone of Proximal Development (ZDP), is placed at the disposal of students in their tasks and activities to assist them in their learning by facilitating comprehension and the attribution of meaning to the information. The scaffolding is always a little in advance of the students’ abilities and acts as a bridge between that which they know and that which they do not know or have to learn. These aids should be transitory and readjustable and should go from a lesser to a greater intensity in terms of the increase in students’ abilities and their responsibility and autonomy.

2 It should be made clear that other aspects of the WQ strategy have been studied, although less so than those of other research topics (Cfr.[3], for more details).
Analyzing the research publications, an investigation was carried out in various specialist search engines such as Teseo, TDX (Doctoral Theses on the Web), Dialnet, Cybertesis.net, DART-Europe E-Theses Portal and Google Scholar in May 2010; the keyword used was “WebQuest” and the search was delimited and filtered where necessary to theses published in Spain. The result was five theses presented in Spain with that term in the title and five more that included it in the abstract. Of these, only three referred to its application in Spanish university education.

The first one deals with the design, development and evaluation of freeware for the creation of WebQuests [41]. A second thesis [42] evaluates the relationship between student satisfaction and the generic abilities they believe they develop in virtual contexts. This thesis, although it approaches the impact of WQ in university subjects, it does not do so exclusively, as it includes it in a wider range of innovative methodological strategies.

The third thesis is Las WebQuests en el Espacio Europeo de Educación Superior (EEES). Desarrollo y evaluación de competencias con tecnologías de la información y la comunicación (TICs) en la universidad [43]. This is the reference work as, up to the time of the review, it is the only one that focuses exclusively on the impact of WQ methodology on university teaching and learning. This study provides empirical evidence for concluding that WQs constitute a suitable methodology for adapting university teaching to the new European Higher Education Area (EHEA) through the use of Information and Communications Technologies (ICTs). In fact, among other results, this research confirmed that WQs contributed to the development of students’ generic abilities, with the best developed including “interpersonal skills”, “general basic knowledge in the field of study”, “basic computer skills” and “the ability to apply knowledge in practice”.

With regard to other types of research publications, we can also refer to the article by Lara [44] analyzing the benefits of WQs in encouraging active learning in university students. In the study conclusions the author highlights the development of abilities associated with the type of task proposed by the WQ used (a design and creation task): instrumental abilities, such as those of organization and planning, problem solving and decision taking; interpersonal abilities, such as the development of interpersonal skills for group and cooperative working; and systemic abilities, such as project design and management, the practical application of contents and the ability to generate innovative ideas.

Lara also emphasises the high rating given by the students to the process and evaluation sections of the implemented WQ and the fact that these guides contributed not only to the collaborative work, but also to the optimization of the time given over to tutorials, as the WQ resources helped the students to explicitly state the specific doubts they wished to ask the tutor about. According to the author, these data confirm scaffolding as a key element in WQs for achieving autonomous learning.

From the bibliography and the research papers reviewed we can conclude that, in general and when compared to other teaching methods, WQs do not normally represent a significantly differential advantage if we measure the learning achievements in terms of acquired content. Nevertheless, the focus changes when learning is also measured in terms of the perceptions and competences developed, as a large part of the research confirms that there is an improvement in attitude towards the area of study in students who work with WQ [8]; they rate the experience positively [10]; their motivation, self-effectiveness, academic autonomy [18]; interpersonal skills () and satisfaction levels are all increased [42-43] or there is an improvement in their independent thinking and integration into the team [13]. Bernabé’s study [43] also indicates that WQs can contribute to the development of other generic abilities, such as “general basic knowledge in the field of study”, “basic computer skills” and “the ability to apply the knowledge in practice”, making them an ideal strategy for use in the context of ability teaching in the EHEA.

Therefore, subjects such as motivation, collaborative work and the development of personal autonomy emerge as the strong points that learning through the WQ strategy can contribute to developing. Likewise, taking into account the results of research such as that of Kanuka et al.[24] or Lara [44] and the proposals put forward by Molebash et al.[23] or March [46] it would be necessary to investigate the difficult balance in the relationship between the provision of structuring/scaffolding vs. personal autonomy/autonomous learning in the university context.

Even so, as pointed out by Abbit and Ophus [7] the general theme that looms over WQs is that of the lack of research into its effects on teaching and learning and the overwhelming predominance of anecdotal views that do not include research methods.
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3 THE USE OF WEBQUESTS IN SPANISH UNIVERSITY EDUCATION: A STUDY

In the context of change in university education brought about by the effective implementation of the EHEA and the methodological challenges involved in this transformation, in 2010 the University of Barcelona’s Digital Education Observatory (OED) decided to investigate the use and diffusion in Spain of a specific methodology that introduces ICT into teaching practice, i.e. WQs. To do this, in addition to reviewing the literature on the subject reflected in the previous section, it was proposed to carry out two surveys that would allow the state of affairs in Spain to be probed: one among the university bodies charged with the training of their teaching staff (Educational Science Institutes-ICE, vice-rectorates with responsibility for the training of teaching and research staff-PDI and other university-related bodies) and another among the teaching staff applying WQ methodology in their teaching. The aim was to ascertain, among other aspects, their impressions of the method’s advantages and disadvantages, as well as how it is received by the students and the suitability of its use in relation to the implementation of the EHEA [3].

A database was created of “experts to consult”, i.e. university teachers in Spain with an accredited use of WQ methodology in their teaching work. At the same time, a search was made on the Internet for WQs conceived for use in higher education; based on that a selection was made of authors considered to be sufficiently representative to include in the survey sample.

3.1 Surveys of Spanish university teaching and research staff training bodies

Of the 76 public and private universities in Spain listed by the Ministry of Education, 67 were contacted (88.15% of all the universities) and their training directors and/or coordinators were sent a questionnaire. This was answered by 20 training centres (29.85% of the total number of questionnaires sent out; n=20).

3.1.1 Some results

The survey showed that practically all the PDI training centres (ICEs or vice-rectorates with training responsibilities) offer training in the methodological incorporation of ICT in university teaching (95%) and that a major proportion of them include or have included the WebQuest methodology in the training they offer (57.9%). Moreover, 54.5% of the centres that offered WQ methodology in their PDI training regularly included WQ courses in their training programmes.

3.2 The survey of university teachers who use WebQuest in their teaching

As mentioned above, a database of sixty experts was created, ruling out those who do not currently exercise their profession in a university. Twenty-one teachers from 13 different universities replied. Of them, the majority were from the field of Educational Sciences (75%), followed by those from the area of Health Sciences (10%).

3.2.1 Some results

53.3% of the teachers working in the area of teacher training incorporate WQ as a study subject, as well as as a teaching and learning methodology. Most of the teachers surveyed have used WQ as a teaching methodology since 2005 and the WQs they use are usually of their own creation (81%). It should be noted that EHEA pilot plans were initiated in the 2005-2006 course.

According to the teachers surveyed, the most interesting aspects of the introduction of WQ in university teaching are the fostering of autonomous working and the fostering of cooperative and/or collaborative work (85.7%), followed by the motivation its use instils in the students (71.4%). They also emphasise the advantages of its clear structuring, which makes the tasks easier to communicate and evaluate (61.9%), and the advantage of its adaptability to virtual learning environments. The most frequent type of task proposed by teachers in their WQs are design tasks (82.4%), followed by analysis and creation tasks.

The main difficulty perceived by the teachers in incorporating WQs into their classes is the time and effort needed to prepare them (71.4%), followed by the ICT the teachers need to create them (57.1%). A little farther down the scale are the difficulties arising from the perception that there is a lack of good university level models or the trivialization of this model due to the name WQ being used for online exercises and activities that fail to meet the necessary requisites to be considered as
true WQs (42.9%). Finally, another difficulty pointed out by the teachers was the number of students per subject, making their incorporation in teaching somewhat unviable.

The teachers’ perception of how students received the WQ work was mainly positive (85.7%) and there were no negative appraisals. For its part, the teachers’ evaluation of the impact of the results of the use of WQ in their classes was also positive (90.5%): only 9.5% believed its impact had not been appreciable.

All those surveyed consider WQs to be a suitable methodology for the ability learning proposed by the EHEA. It can be deduced from the response of the participating teachers that WebQuest methodology is ideal fundamentally for promoting instrumental abilities3, such as the ability to analyse and summarise (90.5%), the ability to organise and plan (90.5%) and the ability to manage the information (85.7%), followed by systemic abilities such as autonomous learning (81%) and interpersonal skills, including working in a team (76.2%). They also emphasised instrumental and systemic competence: problem solving and creativity (66.7%), whereas critical reasoning (interpersonal competence) was in sixth position with 61.9% and computing knowledge relating to the field of study was in seventh place, with 57.1%.

Finally, the majority of the teachers who created their own WQs had begun to introduce Web 2.0 resources. The most commonly used were Wikis (76.9%) followed by blogs (46.2%) and YouTube-type video channels (30.8%).

4 DISCUSSION AND FUTURE PROSPECTS: WEBQUEST TODAY AND TOMORROW

4.1 WebQuest and learning by competences

From the results obtained in our study it can be seen that, in addition to influencing the development of interpersonal skills, the WQ methodology also has an affect on the so-called information competences that Area [47] defines as “a collection of abilities that are more complex than the mere use of ICT to seek out and consult information. These competences involve the skills of information search, selection, critical analysis, reworking and communication, as well as the development of ethical attitudes toward the use of said information. (...) It should be emphasised that the importance lies not only in acquiring the instrumental skills for seeking out and accessing information, but also, and above all, in knowing how to make intelligent use of the information in different contexts”.

In fact, as seen in previous studies, in our survey the teachers considered the fostering of cooperative and collaborative work as one of the main advantages of WQs, together with the encouragement of autonomous working, although when questioned specifically about the suitability of WQ in the development of competences, the competences mentioned in the first instance were those of the instrumental type, followed by the systemic ones. Nevertheless, there is majority agreement that the model is perfectly adapted to the competences teaching system and that it is positively received by students, despite the fact that it means more work and involvement for them.

4.2 WebQuest in the context of Web 2.0

At present the demands for introducing ICT are becoming increasingly complex, particularly in the area of higher education. On the one hand, a large part of university teaching is carried out on virtual platforms, which means that the methodological strategies have to be re-thought. On the other hand, the Internet has also evolved and become reenergized with the advent of Web 2.0 [48], an attitudinal as well as a technological concept that makes reference to the increase in the participatory and audiovisual dimensions of web environments and to the use of collective intelligence to provide networked interactive services, giving the user control of his or her data.

In our study it was possible to confirm the growing incorporation of Web 2.0 in the preparation of WQs, with the most widely used resources being wikis and blogs. It would however be necessary to carry out a more detailed analysis of how and for what Web 2.0 resources are used in WQ.

In fact, a grading could be established for the incorporation of such elements in which the basic level would be their use as an “aesthetic element”, taking a further step when their use corresponds to that

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3 The distinction made in the Tuning Project has been used in the enumeration and classification of competences. [49]
of a fully fledged informative resource, up to the incorporation of Web 2.0 applications as crucial tools in the preparation of the proposed tasks and/or products.

It is also necessary to distinguish between the use of those applications as functional elements in the proposed work of a WQ and their use for the publication, diffusion and sharing of WQs as educational resources. Taking into account that in our study one of the difficulties in creating and using WQ in higher education mentioned by teachers was the perception of a lack of good university level models (42.9%). Moreover, almost 80% of those surveyed were unable to give examples of WQ excellence at this education level.

It is likely that the virtual campus systems used by university institutions have something to do with this lack of awareness and invisibility, which can also be seen when it comes to reusing resources prepared by others (only 19% reuse or adapt existing WQs, despite the fact that the main difficulty in introducing WQ is, according 71.4% of those surveyed, the time and effort needed to create them). However, we consider that although it is quite feasible that the proliferation of Web 2.0 tools (including wikis, blogs and Google Sites-type tools) makes it easier to publish WQs, it also contributes to an increase in the dispersion of the existing offer and consequently to making WQ resources invisible.

As far as this final aspect is concerned, there are already initiatives that respond to the need for an open, online space for storing WQs for universities that would facilitate their agile and free creation, placement, consultation and use based on the use of Web 2.0 [50], [5]. Their success remains to be seen, although undoubtedly that the evolution of such a service will be defined by its users.

In terms of the incorporation of Web 2.0 tools as crucial elements for the development of the tasks, we have already pointed out that more detailed research is needed. Is evident that the use of these resources, in addition to their potential for promoting the acquisition of informational competences of the type indicated by Area, can, with an imaginative use, also foster a type of teaching much more focused on the individuals students (rather than on all students in general) that will perhaps end up being materialized in more evolved versions of the WQ strategy (see March, [46] for an example of this type). In such proposals we are perhaps no longer counting on the easily recognisable structure of today’s WQs; no doubt they will be, in line with “2.0 values”, more open, easy-sharing and personalizable designs that encourage the connection between the student and the task, which is the key element in intrinsic motivation.

REFERENCES


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